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OF OHIO

IN THE HOUSE OF REPRESENTATIVES
IN HONOR OF THE ADVANCED COMMUNICATIONS
TECHNOLOGY SATELLITE

Mr. Speaker, I would like to call the attention of my colleagues to one of the nation's most successful technology transfer programs impacting our daily lives and which promises economic advantage to our great country in the very competitive area of telecommunications. This project, called the Advanced Communications Technology Satellite (ACTS), is the culmination of a decade of satellite technology development by NASA. The ACTS mission will conclude in June 2000 after 81 months of operations far exceeding its 4-year design life. Before this innovative flight project reaches its operational conclusion this summer, permit me to share with you more about its outstanding contributions and examples of how our government research spurs industry growth and jobs, and continues the worldwide preeminence of our technology base.

The explosion of the Information Age and the evolution of the National and Global Information Infrastructure has created a critical need for the next generation of communications satellites. The ACTS Project centers around an experimental payload that incorporates an architecture of advanced technologies typical of what will be found in the next generation of commercial communications satellites. NASA funded this development to maintain America's dominant position in providing communications satellites to the world. This project has been led by a dedicated team of researchers and technologists at NASA's Glenn Research Center, which, I am proud to say, is within my Congressional district.

Mr. Speaker, permit me to tell you more about this success story in space. The technologies selected for ACTS were those that had the potential to enhance dramatically the capabilities of the next generation of satellites. The technologies ACTS pioneered included use of a previously unused high frequency band (called the Ka-band which is 20/30 GHZ..), a futuristic dynamic hooping spot beam antenna, advanced on-board processing and switching, and automatic techniques to overcome increased signal fades experienced at these higher frequencies.

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After its launch in September 1993, NASA partnered with major corporations and small businesses, academia, and other government agencies to demonstrate the new technology in actual user trials. An experiments program involved over 200 organizations that used the satellite for demonstrations, applications, and technology verification across the far reaches of our nation. With an ever-increasing global economy, ACTS was used to demonstrate wideband communications in five other countries (Canada, Colombia, Ecuador, Brazil, and Antarctica).

Applications over the satellite have been done to improve living conditions and ensure a safe and prosperous life style in areas such as telemedicine by transmitting data-intensive imagery for linking urban medical specialists to under served areas of the U.S.; control of power grids for electric utility companies using ultra-small terminals to poll the grid in remote areas; distance learning utilizing high-quality interactive video and audio for delivery of advanced degree, continuing and remedial training to all people without regard to location; integrating design teams for business and industry; natural resource exploration by connecting remote research equipment over high-speed links with major computer analysis facilities; and personal and airborne mobile communications services including technologies enabling advanced passenger services onboard the U.S. commercial airline fleet.

The innovative technologies proved that on-demand, integrates communications are viable, economical, and of national importance for the future of communications. The ACTS users have transformed this space technology into commercial products and services. As a result of the program, the satellite industry is on the cusp of initiating whole new constellations of satellites that represent a market size in the $10s of billions that use many of the concepts developed and verified through the ACTS program.

Mr. Speaker, I am proud to share other success stories of how ACT has benefitted this country in the area of satellite manufacturing. Motorola used ACTS-type on-board processing and Ka-band communications in the first operational system using ACTS technology--Iridium, and continues to include these technologies in a next generation wideband system. Hughes Space and Communications' Spaceway system will utilize an ACTS-like spot beam antenna at Ka-band frequencies to provide low-cost, global high-speed, communications to both residential and commercial users. Loral's Cyberstar will also incorporate Ka-band ACTS-type technology. Lockheed Martin's nine-satellite Astrolink system being developed includes such advances as Ka-band, on-board processing, and spot beam technology. The Teledesic system will provide service with a network of hundreds of satellites using on-board switching to route information between satellites and users. All of these systems show that our country's satellite manufacturers are integrating the ACTS design concept and technologies into their communications systems. This increases the number of highly technical jobs in the U.S. and improves the balance in trade with the strong international market for communications satellite systems.

Thank you Mr. Speaker for allowing me the opportunity to salute this special project with my colleagues. I congratulate NASA and the men and women who developed and operated this satellite technology for the benefit of our nation. It's because of their personal dedication that this country benefits.

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